REMARKS

The Examiner's finding that Claims 6 through 8, 24 through 26, and 36 through 38 contain allowable subject matter is gratefully acknowledged. However, Applicant believes that all other pending claims are also allowable, as will be explained below. Claims 1 through 12, 21 through 30, and 36 through 38 remain pending in the application.

Claim Rejections – 35 USC § 102(a)

Tadigadapa

In Section 2 of the Office Action, the Examiner rejected Claims 1, 9-10, and 11 as being anticipated by Tadigadapa *et al.* (US Pat. App. 2003/0061889, hereinafter "Tadigadapa"). The Examiner asserts that the method disclosed by Tadigadapa includes "providing a first layer of material 800, providing a second layer of material 820, providing a coating 810 on a *recessed portion*/first portion of the first layer 800, fusion/direct bonding the first layer and the second layer to each other . . . the coating 810 being effective to prevent the *recessed coated portion*/first coated portion from bonding with the second layer 820 (figs. 8A-8C) (Office Action of 7/21/2009, Section 1, *emphasis* added).

However, contrary to the assertion of the Examiner, the coating 810 *does not* prevent the coated portion from bonding with the second layer. In fact, the complete opposite is true. As will be appreciated by a careful examination of Figs. 8A-8C, the portions of the first layer that are bonded to the second layer are the *coated* portions.

As described in Paragraph [0055] through Paragraph [0057], the tube section of Tadigadapa is formed, in pertinent part by bonding two silicon wafers and a glass wafer together. First, a tube cavity 802 is created in the first silicon wafer 800 by an etching process ([0055], lines 7-8, Fig. 8A). This is followed by a first boron diffusion step 810 to create the tube body ([0055], lines 8-10, Fig. 8B). A second doped boron layer 830 is formed in the second silicon wafer 820 ([0055], lines 10-11, Fig. 8C). The two silicon wafers are then attached together via fusion bonding ([0056], lines 1-

4, Fig. 8C). The bonded wafers are then etched in a selective silicon etchant which *etches* the undoped silicon and stops at the boron doped silicon ([0056], lines 8-11, Fig. 8D, *emphasis* added) The tube is then patterned and etched using an etching technique ([0056], lines 12-13, Fig. 8E).

It will be apparent upon inspection of Fig. 8C that the coated surface 830 of the second wafer 820 is bonded to the coated surface 810 of the first wafer 800 at every location where the two surfaces come into contact. There is no bonding in the tube cavity area 802 where the coated surface 810 of the first silicon wafer 800 and the coated surface 830 of the second silicon wafer 820 are physically separated. The lack of bonding in the tube cavity 802 is a result of physical separation of the coated surfaces, and not as a result of the applied coatings. Clearly, the coated surfaces 830 and 810 promote bonding of the two layers. Thus, Tadigadapa fails to teach the application of a coating to a first layer, the coating being effective to prevent the coated portion from bonding with a second layer.

The Examiner has clearly misunderstood the teaching of Tadigadapa. Accordingly, the rejections of pending Claims 1, 9-10, and 11 that are based in whole or in part upon Tadigadapa should be withdrawn.

Claim Rejections – 35 USC § 102(e)

Kruri-Yakub

In Section 3 of the Office Action, the Examiner rejected Claims 1, 4-5, and 9-10 as being anticipated by Kruri-Yakub *et al.* (US 6,958,255, hereinafter "Kruri-Yakub"). The Examiner asserts that the method disclosed by Kruri-Yakub includes "providing a first layer of material 11, providing a second layer of material 14/51, providing a coating 57 on a *recessed portion*/first portion of the first layer, fusion/direct bonding the first layer and the second layer to each other..., the coating being effective to prevent the *recessed coated portion*/first coated portion from bonding with the second layer 14/51 (Office Action of 7/21/2009, Section 3, *emphasis* added).

However, contrary to the assertion of the Examiner, the coating 57 *does not* prevent the coated portion from bonding with the second layer. In fact, the complete opposite is true. As will be appreciated by a careful examination of Figs 5.5 and 5.6, the portions of the first layer that are bonded to the second layer are the *coated* portions.

As described in Col. 6, lines 37-64, the transducer of Kruri-Yakub is formed, in pertinent part by an SOI silicon wafer 21 and a prime silicon carrier wafer 11. The first step is to define an extra mass 51 on the SOI wafer 21 by using an etching technique (Col. 6, lines 38-42, Fig. 5.1). In this step, the silicon layer is selectively etched to leave regions or islands to meet the design requirements for the added mass 51. The prime silicon carrier wafer 11 is thermally oxidized to define a cavity 56 depth and an etching sequence removes the exposed oxides (Col. 6, lines 51-54, Fig. 5.4). According to Kruri-Yakub, the cavity 56 depth must be larger than the thickness of the extra mass 51 on the silicon layer of the SOI wafer 21 (Col. 6, lines 54-56, Fig. 5.5). The carrier wafer 11 and the SOI wafer 21 with the extra mass 51 are fuse bonded (Col. 6, lines 62-65, Fig. 5.5).

It will be apparent upon inspection of Fig. 5.5 that the coated surface 57 of the carrier wafer 11 is bonded to the coated surface 14 of the SOI wafer 21 at every location where the two surfaces come into contact. There is no bonding in the cavity 56 regions where the coated surface 14 of the SOI wafer 21 and the coated surface 57 of the carrier wafer 11 are physically separated. The lack of bonding in the cavity 56 region is a result of physical separation of the coated surfaces, and not as a result of the applied coatings. Clearly, the coated surfaces 57 and 14 promote bonding of the two layers. Thus, Kruri-Yakub fails to teach the application of a coating to a first layer, the coating being effective to prevent the coated portion from bonding with the second layer.

The Examiner has clearly misunderstood the teaching of Kruri-Yakub. Accordingly, the rejections of pending Claims 1, 4-5, and 9-10 that are based in whole or in part upon Kruri-Yakub should be withdrawn.

Kruri-Yakub

In Section 4 of the Office Action, the Examiner rejected Claims 21, 27-28, and 29 as being anticipated by Kruri-Yakub. The Examiner asserts that the method disclosed by Kruri-Yakub includes "providing a plurality of layers of material, including at least a first layer 51 and a second layer 11, wherein the first layer includes a silicone membrane 14/movable microvalve portion that is movable relative to a stationary portion of the first layer, providing a coating 57 on a *recessed portion*/a portion of the second layer 11, positioning the coated portion of the second layer adjacent the silicon membrane 14/movable microvalve portion of the first layer, performing a fusion/bonding operation to bond the plurality of layers together, wherein the coating 57 prevents the silicon membrane 14/movable microvalve portion of the first layer from bonding with the *recessed* coated portion of the second layer (Office Action of 7/21/2009, *emphasis* added).

However, contrary to the assertion of the Examiner, the coating 57 *does not* prevent the coated portion from bonding with the second layer. In fact, the complete opposite is true. As will be appreciated by a careful examination of Figs 5.5 and 5.6, the portions of the first layer that are bonded to the second layer are the *coated* portions.

As fully described above, Kruri-Yakub forms a transducer in pertinent part by bonding an SOI silicon wafer 21 defining an added mass 51 to a silicon carrier wafer 11 defining a cavity 56. According to Kruri-Yakub, the cavity 56 depth must be larger than the thickness of the extra mass 51 on the silicon layer of the SOI wafer 21 (Col. 6, lines 54-56, Fig. 5.5).

It will be apparent upon inspection of Fig. 5.5 that the coated surface 57 of the carrier wafer 11 is bonded to the coated surface 14 of the SOI wafer 21 at every location where the two surfaces come into contact. There is no bonding in the cavity 56 regions where the coated surface 14 of the SOI wafer 21 and the coated surface 57 of the carrier wafer 11 are physically separated. The lack of bonding in the cavity 56

region is a result of physical separation of the coated surfaces, and not as a result of the applied coatings. Clearly, the coated surfaces 57 and 14 promote bonding of the two layers. Thus, Kruri-Yakub fails to teach the application of a coating to a second layer, wherein the coating prevents the movable portion of the first layer from bonding with the coating portion of the second layer while an uncoated portion of the second layer bonds to the stationary portion of the first layer.

The Examiner has clearly misunderstood the teaching of Kruri-Yakub. Accordingly, the rejections of pending Claims 21, 27-28, and 29 that are based in whole or in part upon Kruri-Yakub should be withdrawn.

Claim Rejections – 35 USC § 103(a)

Kruri-Yakub in view of Cohn

In Section 5 of the Office Action, the Examiner rejected Claims 2-3 and 22-23 as being unpatentable over Kruri-Yakub in view of Cohn et al. (US Pat App 2002/0096421, hereinafter "Cohn"). Claims 2-3 depends from Claim 1, and Claims 22-23 depend from Claim 21 which are believed to be allowable. As indicated above, the Examiner has clearly misunderstood the teaching of Kruri-Yakub. In combination, the Kruri-Yakub and Cohn references fail to teach the application of a coating to a layer, the coating being effective to prevent the coated portion from bonding with another layer. As such, the rejection of pending Claims 2-3 and 22-23 in Section 5 which is based in part on Kruri-Yakub should be withdrawn.

Kruri-Yakub in view of Ting

In Section 6 of the Office Action, the Examiner rejected Claims 12 and 30 as being unpatentable over Kruri-Yakub in view of Ting et al. (US Pat App 2002/0096421, hereinafter "Cohn"). Claim 12 depends from Claim 1, and Claim 30 depends from Claim 21 which are believed to be allowable. As indicated above, the Examiner has clearly misunderstood the teaching of Kruri-Yakub. In combination, the Kruri-Yakub and Ting references fail to teach the application of a coating to a layer,

the coating being effective to prevent the coated portion from bonding with another layer. As such, the rejection of pending Claims 12 and 30 in Section 6 which is based in part on Kruri-Yakub should be withdrawn.

Allowable Subject Matter

In Section 7, the Examiner's finding that Claims 6-8, 24-26, and 36-38 contain allowable subject matter is gratefully acknowledged. Applicant appreciates the diligence of the Examiner in the examination of this application.

Applicant notes, however, that the examiner has paraphrased the limitations of dependent Claims 6, 8, 24, and 26 in the Examiner's Statement of Reasons for Allowance. Applicant notes that there are some differences between the precise wording of these claims and the language recited in the Examiner's Statement of Reasons for Allowance, and further notes that there are other limitations presented in the Allowed Claims. While Applicant believes the claims are allowable, Applicant does not acquiesce to any implication that patentability resides in or is limited to the limitations as stated by the Examiner, nor that each feature noted by the Examiner is required for patentability.

The application should be in proper form for allowance, and a Notice of Allowance is respectfully requested. *If, for any reason, the Examiner cannot issue a Notice of Allowance following entry of this Amendment*, the Examiner is respectfully requested to contact the undersigned attorney to arrange an interview to discuss the reason(s), in order that the application be most expeditiously handled.

Respectfully submitted,

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